Last Mile Vehicle - ISEAUTO

TAL TECH | TALLINN UNIVERSITY OF TECHNOLOGY

BUILDING SELF DRIVING CAR FROM THE SCRATCH

- Fast development of technology
- ISEAUTO project started 1.6.2017
- Built on Open source software
- Knowledge and competence development for students and staff.
- Practical study element is very important.
- Co-operation between institutes and other universities
- We are focusing at the moment on the last mile vehicle development.
- Engineering project. Integration project. PR project.

TALTECH UNIVERSITY – CREATING A BRIGHTER FUTURE!

Estonian **first self-driving car** made its **first autonomous ride** with VIP passangers:

- On September 17th the first official autonomous driving as part of the opening ceremony of TalTech Vision Conference 2018 took place. It was a great success!

- The first official passengers were TalTech rector Jaak Aaviksoo and Vice-President of the European Investment Bank, former Finnish prime minister Alexander Stubb. It was first ever autonomous driving experience for good Estonian friend Alexander Stubb.

https://www.youtube.com/watch?time_continue=25&v=0URhTZ2L4F4

LAST-MILE

TAL TECH
AuVeTECH
ABB
AuVeTECH

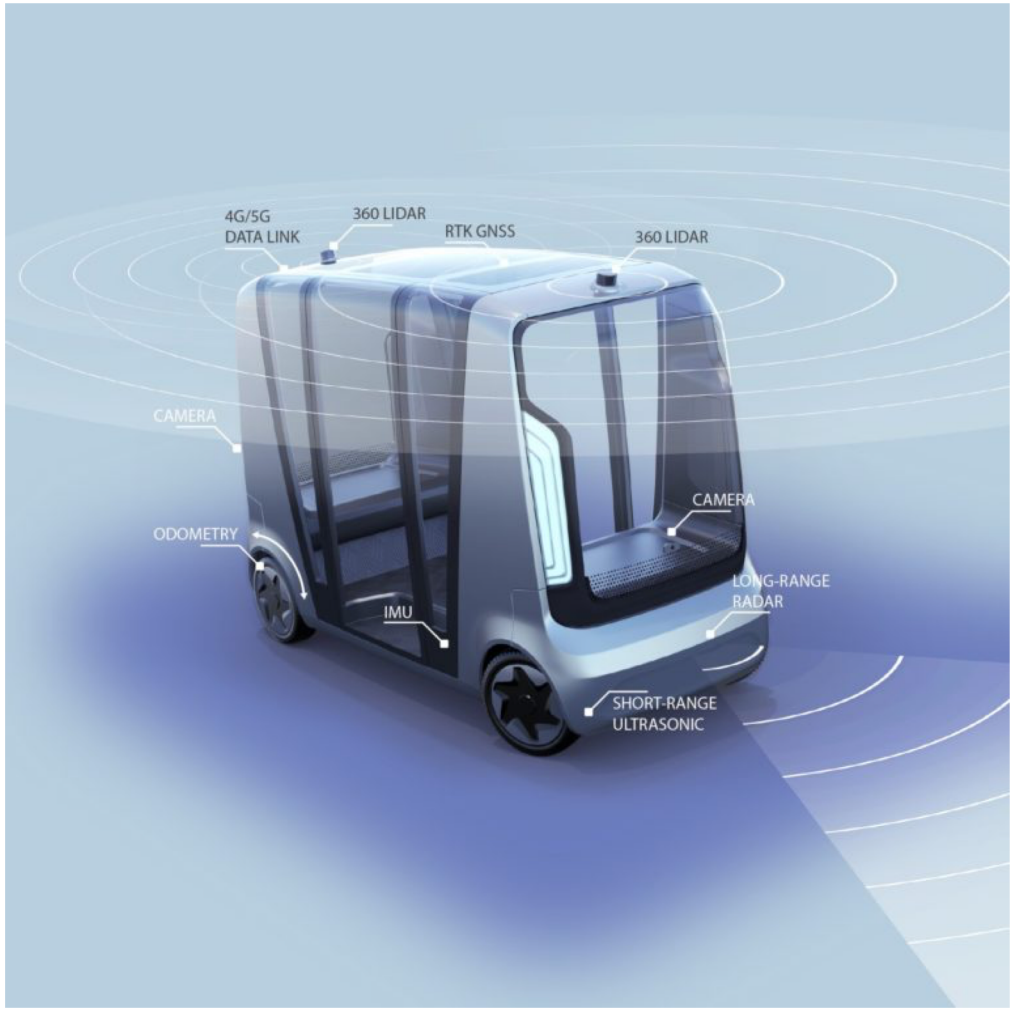
001 Mujl > Firlavd

navya
Keolis

easy
MILE

THE CAR - 2,4 X 3,5 X 1,5 M

- 2x 360 degree lidar, is the main sensor. Gives both horisontal and vertical pointcloud.
- Runs on electrical power.
- Mapped the area, object detections.
- Delivered in June. First chance to meet is in August
- Cargo or pax 4+2
- Cruising speed 10-20km/h
- Main motor 47 kW
- Battery 16 kWh



SAANA - SUSTAINABLE, ALLIED AND AUTOMATED NAVIGATION FOR ALL

Scope

Address **specific user needs** in regional/operating environments, e.g. elderly, children, users w/disabilities
Address needs and **interactions with other/vulnerable road users**, e.g. non-connected users, out-of-position passengers, pedestrians, cyclists and public transport systems, under a mixed automated environment
Address **combined mobility** and **feeder services** of people and goods
Address **electrified** vehicles
Address **peri-urban** and **low-density urban** areas
Address the entire **"functional urban area"**
Integrate **connectivity** to enable cooperation (between vehicles, infrastructure, and other road users), high-performance functions, smart services, fleet management
Integrate **EGNOS** and **Galileo** to improve the positioning availability and reliability
Integrate **big data in (road) transport** to enable smart and safe mobility, innovative traveler services and (city) traffic management
Integrate **security** to protect vehicles from any threats and avoid conscious manipulations of data

ARTIFICIAL INTELLIGENCE FOR EUROPE

SEDEC-VI/046 Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions Artificial Intelligence for Europe −

- PGDG AMP 1-9 - Artificial Intelligence for Europe - **Plenary session amendment**
  - *COR-2018-03953-00-01-AMP-TRA*

  EN +

- Artificial Intelligence for Europe - **Draft opinion of the Committee**
  - *COR-2018-03953-00-00-PAC-TRA*

  EN +

OTHER COLLABORATIONS

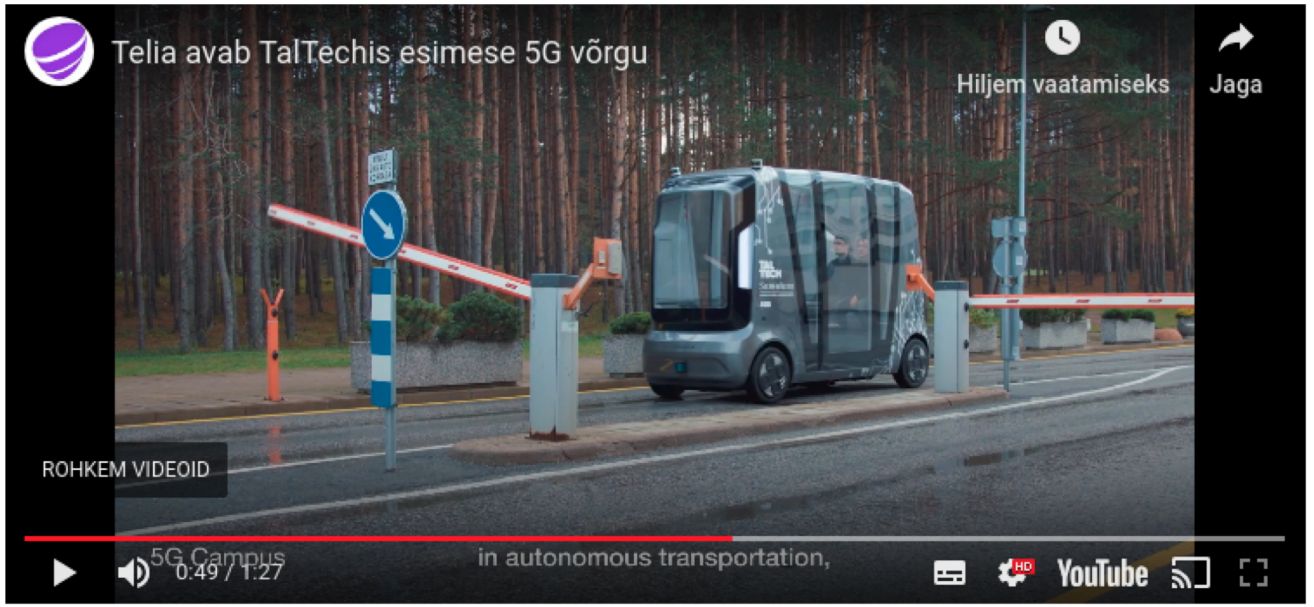
- Cyber security co-operation with TalTech Cyber Security professor Olaf Maennel, Car hacking Hackathons / NATO Cooperative Cyber Defence Centre of Excellence NATO Cyber Security Unit
- Florida SunTrax & Florida Poly
- ITIC - International Transportation Innovation Center: Automotive Innovations

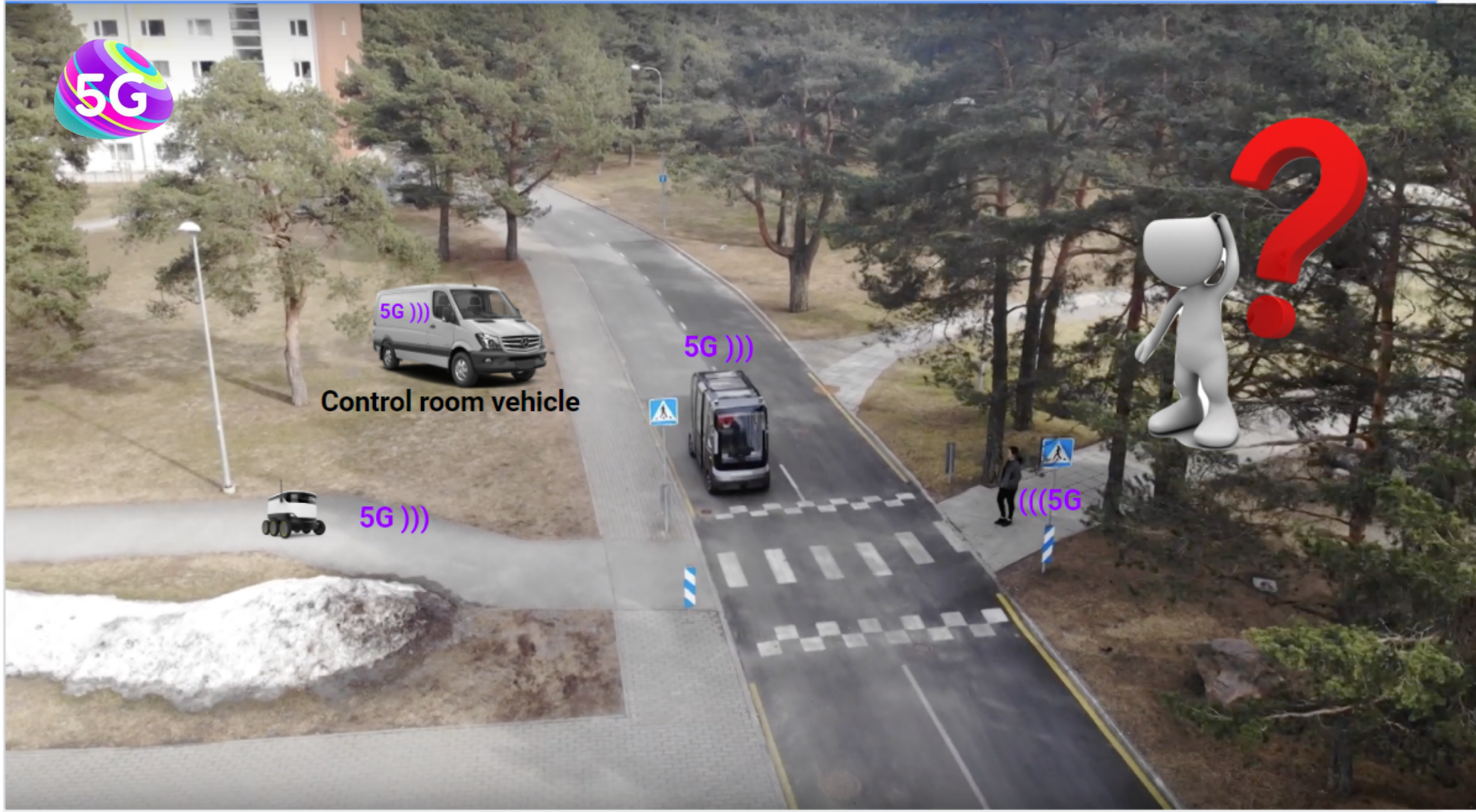
5G SMART CITY PROJECT – LAUNCHED DECEMBER 2018

V2V, V2I, V2X

Per Narvinger, Head of Customer Unit Northern & Central Europe at Ericsson, says:

"Building a pilot 5G network in TalTech campus shows Ericsson's strong commitment to, jointly with our partner Telia, drive innovation and digitalization in Estonia. This 5G project also serves as another crucial step towards launching early commercial 5G services in the country."




5G
5G)))
Control room vehicle
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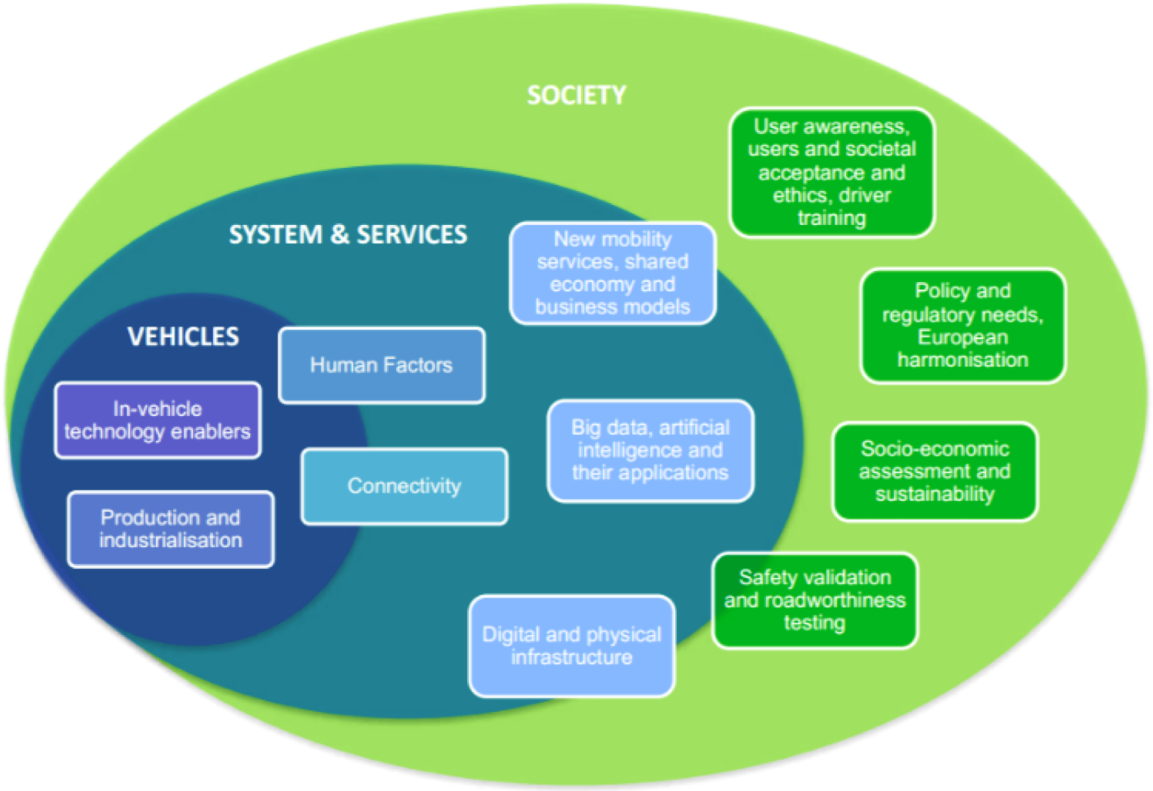
HUMAN MACHINE LANGUAGE – COMMUNICATION BETWEEN AI AND HUMANS



Services

Collision avoidance
- V2X, V2V
- mmWave Radars

Security
- Data validity and integrity
- Communication

Open car platform
- New sensorics
- New services
- Edge computing
- Passenger behaviour

5G

Cloud platform

Energy
- Energy quality
- Usage profiles
- Energy efficient materials
- Energy market
- Smart metering

Vehicle
- Route planning
- Usage statistics
- Ordering process
- Payment solutions

Technology

Smart streetlight

Smart crossing

ISEAUTO

Smart electric bikes

Zero Energy building

STARSHIP

TAL TECH

ERICSSON

Telia

AUVETECH

FUTURE VISION

- Big change in transportation – self driving cars are taking over.
- Ownership of the car - 90% of the cars are just standing.
- The wider goal of the project is to set up a smart city space along with a self-driving vehicles and a smart infrastructure.
- Crossings. Cloud based solutions and what we can do with this data. How to create the future cities safer. Smart trafficlights with sensons and cameras, that can measure people's movement, tracing etc.
- Cyber security co-operation. The students are going to have a hacking competition.
- V2V (vehicle-to-vehicle) communication with Starship delivery robots will be next test case.
- In the future we have special areas for the unsafe driving – the kind of driving we do today.

TALTECH UNIVERSITY – READY FOR NEW CHALLENGES!

AUVETECH

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